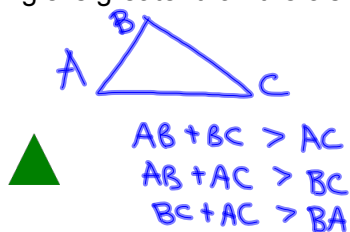


4.7 Triangle Inequalities

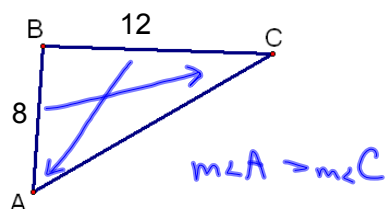
Theorem 4.12—Triangle Inequality Theorem
the sum of the lengths of 2 sides of a triangle is greater than the 3 side



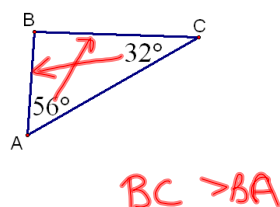
Can these make a \triangle ?

2, 5, 6	$2 + 5 > 6$ ✓	yes
9, 10, 11	$9 + 10 > 11$ ✓	yes
2, 3, 5	$2 + 3 > 5$ No	No
1, 1, 1		yes

Theorem 4.10—If $BC > BA$, then $m\angle A > m\angle C$

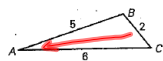


Theorem 4.11—If $m\angle A > m\angle C$, then $BC > BA$



Name the smallest and largest angles of the triangle.

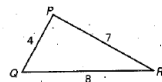
4.



#4

sm. $\angle A$
lg. $\angle B$

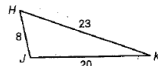
5.



#5

sm. $\angle R$
lg. $\angle P$

6.

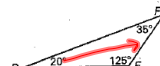


#6

sm. $\angle K$
lg. $\angle J$

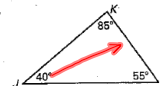
Name the shortest and longest sides of the triangle.

7.



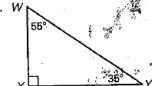
sm FE
lg DF

8.



sm KL
lg JL

9.



sm WX
lg WY

Can the side lengths form a triangle? Explain.

10. 2, 4, 6

no
 $2+4=6$

11. 4, 5, 7

$4+5 > 7$
yes

12. 5, 11, 17

$5+11 < 17$
no

13. 10, 14, 15

yes

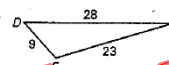
14. 5, 5, 10

no

Do #s 1-6.

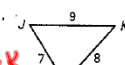
Name the smallest angle and the largest angle of the triangle.

1.



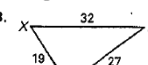
sm $\angle F$
lg $\angle E$

2.



sm $\angle K$
lg $\angle L$

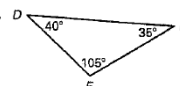
3.



sm $\angle X$
lg $\angle Z$

Name the longest side and the shortest side of the triangle.

4.



sm DE
lg DF

5.



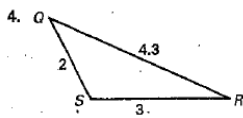
sm JL
lg KL

6.

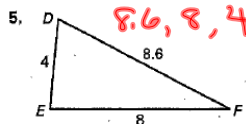


sm YZ
lg XZ

Name the angles from largest to smallest.



$lg \rightarrow sm$
 $\angle S, \angle Q, \angle R$



$lg \rightarrow sm$
 $\angle E, \angle D, \angle F$

Attachments

4_7_triangle.gsp